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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/632,235	08/04/2000	Allan Tzungren Tzeng	SUN-P4497	1869

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EXAMINER	
DO, CHAT C	

ART UNIT	PAPER NUMBER
2193	

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/632,235	TZENG ET AL.	
	Examiner	Art Unit	
	Chat C. Do	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-3 and 7* is/are allowed.

6)☒ Claim(s) *4-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to Amendment filed 03/03/2005.

2. Claims 1-7 are pending in this application. Claims 1 and 4-7 are independent claims. In Amendment, claims 1 and 4-6 are amended. This Office action is made final.

Claim Objections

3. Claim 6 is objected to because of the following informalities:

The applicant is advised to change step (e) to step (f) in line 11.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Oberman et al. (U.S. 6,298,367).

Re claim 4, Oberman et al. further disclose in Figures 4 and 6 a machine readable medium containing a data structure (130) having an instruction therein for determining which values from a local store containing floating point values to send to a floating point execution unit (From Input Unit 210 and Execution Engine 130 in Figure 4), and in

parallel to a compare unit (308 and {330; 340} these two units are fed with operands in parallel), where compare unit and floating point execution unit (middle portion of Figure 6) are operatively coupled to an EAC value calculator (320; 350) to provide a rounding choice to an adder unit (35) upon having an adder unit complete the addition (col. 18 lines 24-26 wherein right after completion of addition 340 the selection or choice would be made by the selection unit 350).

Re claim 5, Oberman et al. further disclose in Figures 5-6 and 9 method for providing a correct rounding choice for floating point subtraction (202 control) comprising: (a) providing a first floating point value having a sign, an exponent, and a mantissa (M_A and E_A by unit 210 in Figure 5); (b) providing a second floating point value having a second sign, a second exponent, and a second mantissa (M_B and E_B by unit 210 in Figure 5); (c) performing a compare (308) of two floating point values (E_B and E_A) while starting a subtraction of first and second mantissas (e.g. 310A); (d) calculating an end-around-carry value using results from compare (350); (e) using end-around-carry value to calculate a rounding choice (320); and, (f) providing rounding choice to an adder unit upon having an adder unit complete subtraction (col. 18 lines 24-26 wherein right after completion of addition/subtraction 340 the selection or choice would be made by the selection unit 350).

Re claim 6, Oberman et al. further disclose in Figures 5-6 and 9 method for providing increased parallelism in a processor comprising: (a) providing a first floating point value having a sign, an exponent, and a mantissa (M_A and E_A by unit 210 in Figure 5); (b) providing a second floating point value having a second sign, a second exponent,

and a second mantissa (M_B and E_B by unit 210 in Figure 5); (c) starting in parallel a compare of first and second floating point values (308) and an addition (330 and 340) of first and second floating point values (308 and {330;340} these two units are fed with operands in parallel), where addition is using the 2's complement form of second mantissa (336 in Figure 7); (d) using compare results to calculate an end-around-carry value (320); (e) calculating a rounding choice using the end-around-carry value; and (e) providing a round choice upon having addition is completed (col. 18 lines 24-26 wherein right after completion of addition/subtraction 340 the selection or choice would be made by the selection unit 350).

Allowable Subject Matter

6. Claims 1-3 and 7 are allowed.

Response to Arguments

7. Applicant's arguments filed 03/03/2005 have been fully considered but they are not persuasive.

a. The applicant argues in page 6 for claims 4-6 that the cited reference by Oberman does not disclose a correct rounding choice that accomplishes in parallel as in the claimed invention. In particular, the selection unit 350 is incapable of providing a rounding choice to the adder unit by the time the adder unit completes the subtraction.

The examiner respectfully submits that the selection unit 350 is capable of providing a rounding choice to the adder unit by the time the adder unit completes the subtraction as seen in Figures 6 and 8. Even though Figure 6 discloses an output of the adder/subtractor unit 340 is required to feed into the selection unit after completing adding/subtracting, but it is not necessary that fed output is generated before the completing adding/subtracting. In Figure 8, the fed outputs to the selection unit 350 are A_{MSB}, B_{MSB}, and carry-out of A_{MSB-1}, B_{MSB-1}. These fed outputs to the selection unit can be generated after overflow (OV) signal and after the adder/subtractor output 342A and 342B. Therefore, the selection unit 350 is capable of providing a rounding choice to the adder unit (e.g. including the multiplexer shift unit 360) by the time the adder unit completes the addition/subtraction. Clearly explain above, the correct rounding choice (e.g. 350 as a part) can accomplish in parallel with the adding/subtraction unit even though it requires fed outputs from the adding/subtraction unit.

b. The applicant argues in page 7 first paragraph for claims 4-6 that the cited reference by Oberman does not disclose the comparators make available an output that may be used to calculate the EAC bit value.

First, the claims do not define a particular structure of the comparators. Thus, any component with label as comparator would meet the limitation. Second, the examiner considers the EAC calculator as the GRS logic 320 and selection unit 350. As seen in Figure 6, the output of the comparator 308 is fed into the

selection unit 350 and GRS logic 320 for providing a correct rounding choice to the adder/subtractor unit wherein the GRS logic unit 320 may be used to calculate the EAC bit value as in claimed invention.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the rounding choice is calculated in parallel with the adder unit performing the subtraction in lines 7-9 in page 6) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on 7:00AM to 5:00PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C Do
Examiner
Art Unit 2193

April 15, 2005

KAKALI CHAKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100